

### Exercise 1

Calc. : ✖

The diagram below shows the graph of the function  $f(x) = \frac{ax+b}{x+c}$ .

The dotted blue lines represent the asymptotes. The graph passes through the point  $(0, -\frac{1}{2})$ .

1. Give the equation of the vertical asymptote. 2 marks
2. State the domain of the function. 2 marks
3. Find value of  $c$ . 2 marks
4. Give the equation of the horizontal asymptote. 2 marks
5. State the range of the function. 2 marks
6. Find value of  $a$ . 2 marks
7. A student says that the value of  $b$  is 1. Are they correct? You must justify your answer. 2 marks

